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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR        | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------------|---------------------|------------------|
| 10/590,518   | 12/07/2006  | Yozo Shoji                  | 4035-0183PUS1       | 7374             |
| 2292 7590 09/08/2009<br>BIRCH STEWART KOLASCH & BIRCH<br>PO BOX 747<br>FALLS CHURCH, VA 22040-0747 |             |                             |                     |                  |
| EXAMINER<br>WANG, QUAN ZHEN  |             |                             |                     |                  |
| ART UNIT<br>2613   |             | PAPER NUMBER                |                     |                  |
| NOTIFICATION DATE<br>09/08/2009  |             | DELIVERY MODE<br>ELECTRONIC |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

**Application No.**

10/590,518

**Applicant(s)**

SHOJI ET AL.

**Examiner**

QUAN-ZHEN WANG

**Art Unit**

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date 8/24/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because:
  - 1) Descriptive labels are need in figs. 1 and 10;
  - 2) Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation of "..., thereby being switched the frequency channel of the modulated radio signal extracted by the remote antenna station". However, it is unclear what the cited limitation means.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1 and 8 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Admitted Prior Art fig. 10 (APA).

Regarding claim 1, as it is understood in view of above 112 problem, APA discloses a system comprising the step of controlling the frequency of at least one of the optical signals from a first or a second light sources (fig. 10, the frequencies of the lasers are inherently controlled by the system).

Regarding claim 8, APA (fig. 10) discloses a base station in a radio optical fusion communication system that includes the base station and a remote antenna station, the base station generating a modulated radio signal, electro-optically converting the generated signal into an optical signal while the modulation mode is kept, and transmitting the converted signal to the remote antenna station over an optical fiber path, the remote antenna station opto-electrically converting the received optical signal to extract the modulated radio signal and transmitting the signal through an antenna by radio, the base station comprising:

- a first light source and a second light source for generating optical signals of different frequencies (fig. 10, lasers 101 and 102);

- an intermediate-frequency signal generating means for generating a modulating signal at an intermediate frequency band (fig. 10, element 103);

- a modulator for modulating the optical signal from the first light source (fig. 10, modulator 104);

- an optical mixer for mixing the modulated optical signal with the optical signal from the second light source to obtain an optical transmission signal (fig. 10, mixer 105);

and

- control means (inherent) capable of controlling the frequency of at least one of the optical signals from the first and second light sources so that the difference in frequency between the optical signals is a desired frequency of the modulated radio signal.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art fig. 10 (APA) in view of Ogusu (U.S. Patent US 6,674,969 B1).

Regarding claims 2 and 9, APA has been discussed above in regard with claims 1 and 8. APA differs from claimed invention in that APA does not specifically disclose that the system includes an optical frequency shifter, provided downstream of at least one of the first and second light sources, for shifting the frequency of the optical signal from the light source. However, it is well known in the art to provide an optical frequency shifter downstream of a light source, for shifting the frequency of the optical signal from the light source. For example, Ogusu discloses to provide an optical frequency shifter downstream of a light source, for shifting the frequency of the optical signal from the light source (fig. 5, external modulator 25). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical frequency shifter, as disclosed by Ogusu in the system of APA. The motivation for doing so would have been to have a system capable of changing the frequency of the light and the frequency difference between the light and another light (Ogusu: column 4, lines 37-43).

***Allowable Subject Matter***

8. Claims 3-7 and 10-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcome the rejections under 35 U.S.C. §112, second paragraph.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUAN-ZHEN WANG whose telephone number is (571)272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

9/1/2009  
/Quan-Zhen Wang/  
Primary Examiner, Art Unit 2613